



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,980	06/24/2003	Shunpei Yamazaki	0553-0369	2058

7590 03/21/2007
COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
SUITE 2850
200 WEST ADAMS STREET
CHICAGO, IL 60606

EXAMINER

PERRY, ANTHONY T

ART UNIT PAPER NUMBER

2879

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/602,980	Applicant(s) YAMAZAKI ET AL.	
	Examiner Anthony T. Perry	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 23-41 and 43-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-41, 43-52 and 69 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-15, 23-27, 29-36, 53-57, 59-68 and 70 is/are rejected.
- 7) ☒ Claim(s) 7, 28 and 58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/05/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment filed on 1/05/2007, has been entered and acknowledged by the Examiner.

New claims 67-70 have been added.

Claim Objections

Applicant is advised that should claim 7 be found allowable, claim 28 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are *so close in content that they both cover the same thing, despite a slight difference in wording*, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Although, claim 7 is dependent from a different independent claim than claim 28, the two claims are substantial duplicates. Both claims 7 and 28 as a whole (including the limitations of their respective independent claims) state that multilayer film comprises a laminate of a metal film composed of aluminum, a silicon nitride film, a titanium nitride film, and another silicon nitride film. It is true that claim 1 does not specifically recite, "a light absorbing multilayer film including three layers formed of different materials." However, claim 7 lists three different types of materials making up the multilayer light-absorbing film (a metal film composed of aluminum, a silicon nitride film, a titanium nitride film). Therefore the added recitation, "a light absorbing multilayer film including three layers formed of different materials," in claim 23 does not further limit claim 28 in comparison to claim 7.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 10, 12, 53-57, 61, 63, 67 and 70 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamada (US 6,114,715).

Regarding claims 1, 10, 53, 61, 67, and 70, Hamada teaches a light-emitting device comprising: an anode as the first electrode comprising two layers (53 & 103), wherein the anode is connected to a thin film transistor (43) through an insulating film that is formed over the TFT (43), over a substrate (102) that has an insulating surface, and under and in contact with the first electrode (53 + 103); a partition wall (54 + 2) covering an edge of the first electrode (53 + 103) and formed over the insulating film (49); a layer comprising an organic compound (104-107) formed over and in contact with the first electrode (53 + 103); and a cathode as the second electrode (108) in contact with the layer comprising an organic compound, wherein the partition wall comprises a laminate of an organic resin layer (54) and a light-absorbing layer (2) (see Fig. 8). Hamada teaches that the light-absorbing layer (2) in Fig. 8 may be replaced by the multilayer film (24) which inherently absorbs light (see col. 9, lines 48-51).

Regarding claims 2 and 54, the partition wall (54 + 2) covers other regions than a light emitting region in which the first electrode (53 + 103) and the organic compound-containing layer (104-107) are in contact with each other and laid on top of each other (see Fig. 8).

Art Unit: 2879

Regarding claims 3, 5, 55, and 57, Hamada teaches the multilayer film including a layer that comprises silicon oxide (see col. 7, lines 9-11).

Regarding claims 4 and 56, Hamada teaches the multilayer film including a layer that comprises silicon nitride (layer 12) (see col. 6, lines 43-47).

Regarding claims 12 and 63, Hamada teaches the organic compound being a material emitting blue light (see col. lines 23-32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 11, 13-15, 59, 62, and 64-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715).

Regarding claims 8 and 11, Hamada only shows a bottom-emitting type EL device, and as such does not specifically teach the first electrode being a light transmissive cathode. However, it is well known in the art that organic EL displays can be of the top-emitting type or bottom-emitting type, simply by reversing the order of the cathode, organic EL layer, and anode. In a top-emitting type EL device the cathode is formed of a conductive light transmissive material. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first electrode be a light transmissive cathode where a top-emitting device is desired.

Regarding claims 13-14, Hamada does not specifically teach the organic EL layer being a white light-emitting material used with a color filter or being a material emitting monochromatic light used with a color conversion layer. However, it is well known in the art that there are there three different methods of making an organic EL display a full-color display including: (1) the three color light-emitting method, as taught by Hamada, where three different types of organic EL material are used that emit lights corresponding to the three primary colors; (2) a white color method in which white light emitted by an organic EL element for emitting white light is passed through a color filter so as to be divided into the three primary colors; and (3) a color conversion method in which a monochromatic light emitting EL element emitting blue light is passed through a fluorescent dye layer and converted into red and green. The color conversion layers and color filters are located in a sealing member to protect them from outside elements. Each of the methods have different known advantages. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the types to form a full-color organic EL display.

Regarding claim 15, Hamada teaches that the organic EL display device provides high-definition images. Hamada does not specifically state that the EL device is used in one of the claimed devices. However, the use of color organic EL devices in such display devices as claimed is well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the organic EL display device taught by Hamada in one of the claimed devices because of its ability to provide high-definition images.

Regarding claims 59 and 62, Hamada only shows a bottom-emitting type EL device, and as such does not specifically teach the first electrode being a light transmissive cathode.

However, it is well known in the art that organic EL displays can be of the top-emitting type or bottom-emitting type, simply by reversing the order of the cathode, organic EL layer, and anode.

In a top-emitting type EL device the cathode is formed of a conductive light transmissive material. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first electrode be a light transmissive cathode where a top-emitting device is desired.

Regarding claims 64-65, Hamada does not specifically teach the organic EL layer being a white light-emitting material used with a color filter or being a material emitting monochromatic light used with a color conversion layer. However, it is well known in the art that there are three different methods of making an organic EL display a full-color display including: (1) the three color light-emitting method, as taught by Hamada, where three different types of organic EL material are used that emit lights corresponding to the three primary colors; (2) a white color method in which white light emitted by an organic EL element for emitting white light is passed through a color filter so as to be divided into the three primary colors; and (3) a color conversion method in which a monochromatic light emitting EL element emitting blue light is passed through a fluorescent dye layer and converted into red and green. The color conversion layers and color filters are located in a sealing member to protect them from outside elements. Each of the methods have different known advantages. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the types to form a full-color organic EL display.

Regarding claim 66, Hamada teaches that the organic EL display device provides high-definition images. Hamada does not specifically state that the EL device is used in one of the claimed devices. However, the use of color organic EL devices in such display devices as claimed is well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the organic EL display device taught by Hamada in one of the claimed devices because of its ability to provide high-definition images.

Claims 9 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) as applied to claims 1 and 53, above, in view of Oda et al. (US 6,396,208).

Regarding claim 9, Hamada does not specifically teach the first electrode having a concave shape. However, Oda teaches the first electrode having a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency (for example, see the abstract).

Regarding claim 60, Hamada does not specifically teach the first electrode having a concave shape. However, Oda teaches the first electrode having a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency (for example, see the abstract).

Claims 1-2, 4-5, 8, 10-15, 53-54, 56-57, 59, and 61-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) in view of Iwase et al. (US 6,768,534).

Regarding claims 1, 4-5, 10, 53, 56, 57, and 61, Hamada teaches a light-emitting device comprising: an anode comprising two layers (53 & 103), wherein the anode is connected to a thin film transistor (43) through an insulating film that is formed over the TFT (43), over a substrate (102) that has an insulating surface, and under and in contact with the first electrode (53 + 103); a partition wall (54 + 2) covering an edge of the first electrode (53 + 103) and formed over the insulating film (49); a layer comprising an organic compound (104-107) formed over and in contact with the first electrode (53 + 103); and a cathode as the second electrode (108) in contact with the layer comprising an organic compound, wherein the partition wall comprises a laminate of an organic resin layer (54) and a light-absorbing layer (2) (see Fig. 8). Hamada does not specifically teach the light-absorbing layer (black matrix layer) comprising multiple layers.

However, Iwase et al. teaches two different types of black matrix films. One comprised of a single layer and one comprising multiple layers. Iwase teaches that the multilayer film has a predetermined reflected light attenuating structure and comprises a chromium metallic layer and a light transmissive insulating layer comprising nitride. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to reasonably contemplate the use of such a black matrix multilayer film since Iwase teaches that it has a predetermined reflected light attenuating structure and that it is a known alternative to a single layer black matrix film.

Regarding claim 2 and 54, the partition wall (54 + 2) covers other regions than a light emitting region in which the first electrode (53 + 103) and the organic compound-containing layer (104-107) are in contact with each other and laid on top of each other (see Fig. 8).

Regarding claim 12 and 63, Hamada teaches the organic compound being a material emitting blue light (see col. lines 23-32).

Regarding claims 8, 11, 59, and 62, Hamada only shows a bottom-emitting type EL device, and as such does not specifically teach the first electrode being a light transmissive cathode. However, it is well known in the art that organic EL displays can be of the top-emitting type or bottom-emitting type, simply by reversing the order of the cathode, organic EL layer, and anode. In a top-emitting type EL device the cathode is formed of a conductive light transmissive material. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first electrode be a light transmissive cathode where a top-emitting device is desired.

Regarding claims 13-14 and 64-65, Hamada does not specifically teach the organic EL layer being a white light-emitting material used with a color filter or being a material emitting monochromatic light used with a color conversion layer. However, it is well known in the art that there are there three different methods of making an organic EL display a full-color display including: (1) the three color light-emitting method, as taught by Hamada, where three different types of organic EL material are used that emit lights corresponding to the three primary colors; (2) a white color method in which white light emitted by an organic EL element for emitting white light is passed through a color filter so as to be divided into the three primary colors; and (3) a color conversion method in which a monochromatic light emitting EL element emitting blue light is passed through a fluorescent dye layer and converted into red and green. The color conversion layers and color filters are located in a sealing member to protect them from outside elements. Each of the methods have different known advantages. Accordingly, it would have

Art Unit: 2879

been obvious to one of ordinary skill in the art at the time the invention was made to use any of the types to form a full-color organic EL display.

Regarding claims 15 and 66, Hamada teaches that the organic EL display device provides high-definition images. Hamada does not specifically state that the EL device is used in one of the claimed devices. However, the use of color organic EL devices in such display devices as claimed is well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the organic EL display device taught by Hamada in one of the claimed devices because of its ability to provide high-definition images.

Claims 9 and 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) in view of Iwase et al. (US 6,768,534) as applied to claims 1 and 53, above, in view of Oda et al. (US 6,396,208).

Regarding claims 9 and 60, Hamada does not specifically teach the first electrode having a concave shape. However, Oda teaches the first electrode having a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency (for example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to provide the first electrode with a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency.

Claims 1-5, 8, and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) in view of Kaneda et al. (JP 2000-269473).

Regarding claims 1, 3-5, and 10, Hamada teaches a light-emitting device comprising: an anode comprising two layers (53 & 103), wherein the anode is connected to a thin film transistor (43) through an insulating film (49) that is formed over the TFT (43), over a substrate (102) that has an insulating surface, and under and in contact with the first electrode (53 + 103); a partition wall (54 + 2) covering an edge of the first electrode (53 + 103) and formed over the insulating film (49); a layer comprising an organic compound (104-107) formed over and in contact with the first electrode (53 + 103); and a cathode as the second electrode (108) in contact with the layer comprising an organic compound, wherein the partition wall comprises a laminate of an organic resin layer (54) and a light-absorbing layer (2) (see Fig. 8). Hamada does not specifically teach the light-absorbing layer (2) (black matrix layer) comprising multiple layers.

However, Kaneda et al. teaches a multilayer light-absorbing film comprising a SiO₂ layer (56), a titanium nitride layer (53), an aluminum metal layer (55), and another SiO₂ layer (56) (see Fig. 1 and paragraphs 0012-0013) that provides an improved light-absorbing layer that absorbs 90% or more of reflected ambient light, protecting the transistors from degradation and eventual malfunction. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to use such a superior light-absorbing multilayer film in place of the single layer film disclosed in the Hamada reference in order to increase the amount of ambient light absorbed providing improved TFT protection.

Regarding claim 2, the partition wall (54 + 2) covers other regions than a light emitting region in which the first electrode (53 + 103) and the organic compound-containing layer (104-107) are in contact with each other and laid on top of each other (see Fig. 8).

Regarding claims 6-7, Kaneda teaches the SiO₂ layers (56 and 54) being replaced with silicon nitride in order to increase the light absorption even further (to about 99%) (see for example paragraph 0016).

Regarding claim 12, Hamada teaches the organic compound being a material emitting blue light (see col. lines 23-32).

Regarding claims 8 and 11, Hamada only shows a bottom-emitting type EL device, and as such does not specifically teach the first electrode being a light transmissive cathode. However, it is well known in the art that organic EL displays can be of the top-emitting type or bottom-emitting type, simply by reversing the order of the cathode, organic EL layer, and anode. In a top-emitting type EL device the cathode is formed of a conductive light transmissive material. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first electrode be a light transmissive cathode where a top-emitting device is desired.

Regarding claims 13-14, Hamada and Kaneda do not specifically teach the organic EL layer being a white light-emitting material used with a color filter or being a material emitting monochromatic light used with a color conversion layer. However, it is well known in the art that there are there three different methods of making an organic EL display a full-color display including: (1) the three color light-emitting method, as taught by Hamada, where three different types of organic EL material are used that emit lights corresponding to the three primary colors; (2) a white color method in which white light emitted by an organic EL element for emitting white light is passed through a color filter so as to be divided into the three primary colors; and (3) a color conversion method in which a monochromatic light emitting EL element emitting

Art Unit: 2879

blue light is passed through a fluorescent dye layer and converted into red and green. The color conversion layers and color filters are located in a sealing member to protect them from outside elements. Each of the methods have different known advantages. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the types to form a full-color organic EL display.

Regarding claim 15, Hamada teaches that the organic EL display device provides high-definition images. Hamada does not specifically state that the EL device is used in one of the claimed devices. However, the use of color organic EL devices in such display devices as claimed is well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the organic EL display device taught by Hamada in one of the claimed devices because of its ability to provide high-definition images.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) in view of Kaneda et al. (JP 2000-269473) as applied to claim 1, above, in view of Oda et al. (US 6,396,208).

Regarding claim 9, Hamada and Kaneda do not specifically teach the first electrode having a concave shape. However, Oda teaches the first electrode having a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency (for example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to provide the first electrode with a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency.

Claims 23-27, 29, 31-36, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) in view of Kaneda et al. (JP 2000-269473).

Regarding claims 23, 25-27, 31, and 68, Hamada teaches a light-emitting device comprising: an anode as the first electrode comprising two layers (53 & 103), wherein the anode is connected to a thin film transistor (43) through an insulating film (49) that is formed over the TFT (43), over a substrate (102) that has an insulating surface, and under and in contact with the first electrode (53 + 103); a partition wall (54 + 2) covering an edge of the first electrode comprising two (53 + 103) and formed over the insulating film (49); a layer comprising an organic compound (104-107) formed over and in contact with the first electrode (53 + 103); and a cathode as the second electrode (108) in contact with the layer comprising an organic compound, wherein the partition wall comprises a laminate of an organic resin layer (54) and a light-absorbing layer (2) (see Fig. 8). Hamada does not specifically teach the light-absorbing layer (2) (black matrix layer) comprising multiple layers.

However, Kaneda et al. teaches a multilayer light-absorbing film comprising a SiO₂ layer (56), a titanium nitride layer (53), an aluminum metal layer (55), and another SiO₂ layer (56) (see Fig. 1 and paragraphs 0012-0013) that provides an improved light-absorbing layer that absorbs 90% or more of reflected ambient light, protecting the transistors from degradation and eventual malfunction. Kaneda teaches a layer of silicon nitride between the interface of the titanium nitride film and the SiO₂ layer in order to increase the light absorption even further (to about 99%) (see for example paragraph 0016). Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to use such a superior light-absorbing

Art Unit: 2879

multilayer film, which includes at least three layers of different materials, in place of the single layer film disclosed in the Hamada reference in order to increase the amount of ambient light absorbed providing improved TFT protection.

Regarding claim 24, the partition wall (54 + 2) covers other regions than a light emitting region in which the first electrode (53 + 103) and the organic compound-containing layer (104-107) are in contact with each other and laid on top of each other (see Fig. 8).

Regarding claim 33, Hamada teaches the organic compound being a material emitting blue light (see col. lines 23-32).

Regarding claims 29 and 32, Hamada only shows a bottom-emitting type EL device, and as such does not specifically teach the first electrode being a light transmissive cathode.

However, it is well known in the art that organic EL displays can be of the top-emitting type or bottom-emitting type, simply by reversing the order of the cathode, organic EL layer, and anode. In a top-emitting type EL device the cathode is formed of a conductive light transmissive material. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first electrode be a light transmissive cathode where a top-emitting device is desired.

Regarding claims 34-35, Hamada and Kaneda do not specifically teach the organic EL layer being a white light-emitting material used with a color filter or being a material emitting monochromatic light used with a color conversion layer. However, it is well known in the art that there are three different methods of making an organic EL display a full-color display including: (1) the three color light-emitting method, as taught by Hamada, where three different types of organic EL material are used that emit lights corresponding to the three primary colors;

(2) a white color method in which white light emitted by an organic EL element for emitting white light is passed through a color filter so as to be divided into the three primary colors; and
(3) a color conversion method in which a monochromatic light emitting EL element emitting blue light is passed through a fluorescent dye layer and converted into red and green. The color conversion layers and color filters are located in a sealing member to protect them from outside elements. Each of the methods have different known advantages. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the types to form a full-color organic EL display.

Regarding claim 36, Hamada teaches that the organic EL display device provides high-definition images. Hamada does not specifically state that the EL device is used in one of the claimed devices. However, the use of color organic EL devices in such display devices as claimed is well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the organic EL display device taught by Hamada in one of the claimed devices because of its ability to provide high-definition images.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada (US 6,114,715) in view of Kaneda et al. (JP 2000-269473) as applied to claim 23, above, in view of Oda et al. (US 6,396,208).

Regarding claim 30, Hamada and Kaneda do not specifically teach the first electrode having a concave shape. However, Oda teaches the first electrode having a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency (for

Art Unit: 2879

example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to provide the first electrode with a concave shape so as to utilize the reflection of concave electrode for improving light-collection efficiency.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sotoyama et al. (US 6,805,977) provides evidence that the three different methods of making full-color organic EL displays is well known in the art.

Silvernail et al. (US 6,597,111) provides evidence that top-emitting and bottom-emitting displays are well known in the art and that organic EL display devices can be switched between one or the other simply by rearranging the orders of the cathode, EL layer, and the anode.

Response to Arguments

Applicant's arguments filed 1/05/07 have been fully considered but they are not persuasive.

Regarding Applicant's arguments that electrode 53 is not part of the anode, since Hamada labels it as a source electrode, the Examiner respectfully disagrees. The term "source electrode" refers a conductive wire that connects to a source region of a TFT. The electrode layer (53) is connected to the source region of the TFT through the insulator (49) and under another electrode layer (103). The two electrodes in combination make up the anode of the display device. The two-layered structure is similar to the anode of the current invention (for example, compare Fig. 9 of the Hamada reference to Fig. 1A of the current application). The electrode layer (53) of the Hamada reference makes up the first layer of the anode, much like the Applicant's first layer

Art Unit: 2879

(18a), for example, both first electrode layers are formed over insulating layers (reference number 49 of the Hamada reference and reference number 16b of the current application) and both first layers connect to the source regions (reference number 48a of the Hamada reference and reference number 14 of the current application) of their respective TFTs through their respective insulating layers. Also, the organic compound layers (reference number 104-107 of the Hamada reference and reference number 20 of the current application) are formed over and in contact with their respective upper layers (reference number 103 of the Hamada reference and reference number 18b of the current application). Further, the partition walls (reference number 54+2 of the Hamada reference and reference number 19+24 of the current application) cover edges of the first electrodes (reference number 54+2 of the Hamada reference and reference number 18a+18b of the current application) and are formed over their respective insulating films (reference number 49 of the Hamada reference and reference number 16b of the current application).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2879

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Allowable Subject Matter

Claims 7 and 58 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 37-52 and 69 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to disclose or fairly suggest:

- A partition wall that includes a light absorbing multilayer film comprising a laminate of a metal film mainly composed of aluminum, a silicon nitride film, a titanium nitride film, and another silicon nitride film, in combination with the remaining claimed limitations as called for in claims 7 and 58;
- A partition wall that includes a light absorbing multilayer film comprising a laminate including a reflective metal film, a first light transmissive insulating film comprising nitride, a metal nitride film, and a second light transmissive insulating film comprising nitride, in combination with the remaining claimed limitations as called for in claim 37 (claims 38-41, 43-52, and 69 are allowable for the same reasons since they are dependent on claim 37).

Art Unit: 2879

Contact Information

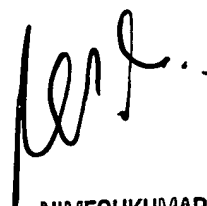
Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is (571) 272-2459. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-24597. **The fax phone number for this Group is (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Anthony Perry
Patent Examiner
Art Unit 2879
March 16, 2007



NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800